

NASA RANGE SAFETY PROGRAM 2005 ANNUAL REPORT

China's Spaceflight Success

China's fledgling manned space program has been in development for more than a decade, with its first unmanned prototype successfully launched and recovered in 1999. Following four successful unmanned space flights of its Shenzhou-series spacecraft, China's historic first manned mission was launched in October 2003, making it the third nation to put a human into orbit behind the former Soviet Union and the United States.

On 12 October 2005, China successfully conducted its second manned space launch aboard the Shenzhou 6 capsule atop a Long March-2F rocket. The mid-morning launch occurred from the remote Jiuquan launch site, in northwest China's Gansu province at the edge of the Gobi desert.



The Astronauts

The astronauts for China's first two-man mission, Fei Junlong and Nie Haiheng, are both former pilots in the Chinese Air Force. Additionally, Fei and Nie were part of the original group of fourteen astronauts training over the past few years for the opportunity to fly in space on the Shenzhou 6. They have been members of the astronaut brigade of the People's Liberation Army since 1998.

NASA RANGE SAFETY PROGRAM 2005 ANNUAL REPORT

During their five-day mission, the pair conducted a regimen of life science experiments and other unspecified activities.

The Equipment

Although the Shenzhou 6 is modeled after the Russian Soyuz, it is considered much safer due to a number of technological advances to the launch vehicle and the launch escape system, deemed critical following the Columbia disaster. In addition, over 110 technical modifications had been made to the spacecraft design for the 2005 flight.

The improved launch escape system allows the crew to escape the pod before liftoff via cables, high-speed elevator, or ejection seats. The escape tower can fire to pull the capsule and orbital module away from the booster in the event of a major booster malfunction from 15 minutes before launch to the point of escape tower jettison at approximately T+120 seconds. The escape tower can be activated automatically by the fault monitoring system or by ground control or manually by the astronauts. Additionally, the escape pod is equipped with improved life-support systems for the crew.



The Long March-2F consists of two core stages, a payload fairing, an escape tower, and four, liquid-fuel, strap-on boosters. The rocket has improved guidance and control equipment, upgraded engines, a fault monitoring management system, and its craft shell has been reinforced to withstand greater extremes of heat and vibration.

The Future

NASA RANGE SAFETY PROGRAM 2005 ANNUAL REPORT

The successful parachute return, in the northern China province of Inner Mongolia, is the first part of the next step in China's methodical space development plan. Senior officials have revealed that the Shenzhou 7 is currently expected to launch next year to perform the program's first spacewalk, and that Shenzhou 8 could rendezvous and dock with the orbital module left in space by Shenzhou 7 as early as 2008. China's long term plans call for a manned space station and more ambitious missions in the next decade.